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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/233,073	01/19/99	NANBU K	033082W001

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EXAMINER	
VINH, L	
ART UNIT	**PAPER NUMBER**
1765	6

DATE MAILED: 11/15/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad mark

Office Action Summary

Application No.	Applicant(s)
09/233,073	Kenichi Nanbu et al.
Examiner	**Group Art Unit**
Lan Vinh	1765

☒ Responsive to communication(s) filed on *Jan 19, 1999*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-3* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-3* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☒ received in Application No. (Series Code/Serial Number) *09/233,073* .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C 103(a) as being unpatentable over Collins et al. (US 5,556,501) in view of Szwejkowski et al. (US 5,338,398).

Regarding claims 1-3 of the instant claimed invention, Collins discloses an etching method using a plasma reactor chamber having an inductively coupled antenna driven by RF energy for etching metals, dielectric and semiconductor material. This etching method comprises the steps of:

supplying etching gas through a main gas inlet manifold into the internal vacuum processing chamber (Col 7, lines 55-59);

developing an etching plasma in the processing chamber upon application of RF energy to the etching gas (Col 7, lines 62-65);

etching polysilicon on silicon wafer in the processing chamber 16B connected to the plasma source chamber 16A by flowing gas from the plasma source chamber downward toward the wafer

located in the processing chamber (Col 22 , lines 45-46 and Fig.1 and Col 8, lines 16-18), evacuating the processing chamber by a throttle valve (Col 7, lines 39-41);

supplying etching gas of Chlorine at a flow rate of 50cc to the processing chamber to etch polysilicon film (Col 22, lines 45-48).

Regarding claim 2, Collins discloses that RF energy is supplied to the plasma source chamber using a coil for efficient inductive coupling (Col 8, lines 4-14).

Collins differs from the instant claimed invention by supplying etching gas of Chlorine at a flow rate of 50cc instead of an etching gas supply rate of 8.4 sccm or above for a substantial volume of one liter of the processing chamber as claimed in the instant invention.

Szwejkowski discloses a process for etching a polysilicon film on a silicon wafer in a vacuum etch chamber using Chlorine etching gas at a rate of from about 40 to about 100 sccm into a 3 liter vacuum processing chamber (Col 4, lines 19-22).

Hence, one skilled in the art would have found it obvious to modify Collins's etching gas flow rates by using the etching gas flow rate as taught by Szwejkowski because Szwejkowski states that using the gaseous component and flow rate of his invention will not result in the undesirable formation of particles on the wafer surface and will not condense at room temperature in the lines used to bring the etchant gases to the vacuum etch chamber (Col 5, lines 49-54)

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is (703) 305-6302. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech, can be reached on (703) 308-3836.

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LV

November 8, 1999